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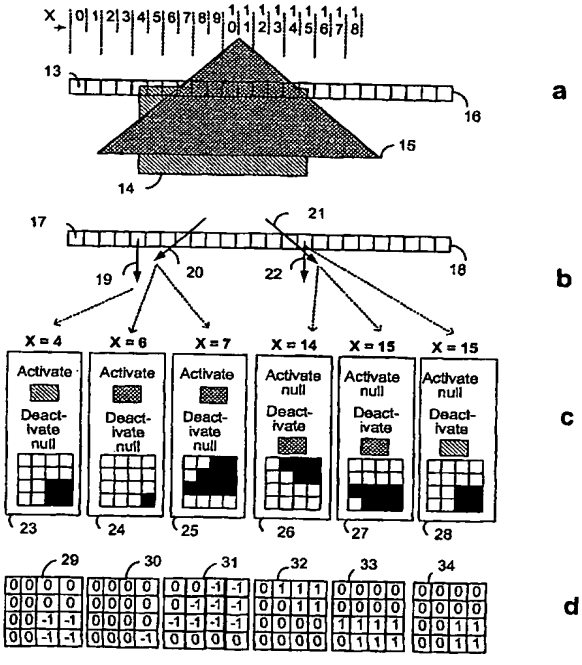
(54) Title: A METHOD FOR TRACKING DEPTHS IN A SCANLINE BASED RASTER IMAGE PROCESSOR




(57) Abstract: Disclosed is an imaging engine system (699) generally intended for the reproduction of graphical object images using apparatus having limited computing resources, such as so-called "thin clients". Numerous developments of traditional image processing and rendering enable high quality image generation. One such development takes advantage of temporal coherence between one frame in an animation sequence and the succeeding frame. In particular, there will often be some edges (233, 235) of graphical objects that remain "static" across several contiguous frames. One example of this includes those edges used to draw image background detail. Another development performs antialiasing during scan line rendering of a graphic object image where sub-pixel resolution coverage bit-masks (A-buffers 29-34) are generated for a limited number of scan lines at a time. Preferably the A-buffers are generated for only one pixel at a time. Another development relates to rendering a scan line of a graphic object image in a scan line renderer for a span of pixels lying between two x-order consecutive edges intersecting the scan line. For the span of pixels, this development maintains a subset of depths present in the rendering, the subset being those depths that are present on the span and being maintained in depth order (590) and subject to removal of depths where the corresponding depth is no longer active. In another development a compositing stack (6101-6107) of image layers to be rendered in a raster scan fashion is simplified. Rendering is operable over a run of two or more pixels within which a relationship between graphical objects contributing to the layers does not change. The layers are first divided into groups (6110, 6112, 6114), with each group being separated by a layer having variable transparency (6111, 6113). For a top one of the groups, layers having constant color in the run are reduced to a single equivalent color (6115, 6116, 6117) having an associated accumulated contribution. Many other developments are disclosed.

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